

TRIPLE/QUAD SCREENS

What is it?

The Triple/Quad Screen is a blood test you may choose to have done between 16 and 20 weeks of pregnancy. It is a *screening* test used to identify pregnancies that are a higher risk to have open neural tube defects, Down Syndrome, or Trisomy 18. The test measures the amounts of three or four substances in your blood: alpha-fetoprotein (AFP); human chorionic gonadotropin (hCG); unconjugated estriol (uE3); and Inhibin-A (quad screen only).

Neural Tube Defects

Neural tube defects (NTDs) are abnormalities that occur in the spinal cord or brain of the developing baby. They are seen in about 1 in 1,000 live births. The two major kinds of NTDs are spina bifida and anencephaly. Spina bifida is a defect of the spinal column. There may be little or no physical handicap, or there may be some lower-limb paralysis. Anencephaly is much more severe and far less common. Infants born with this condition usually do not live long after birth.

Small amounts of AFP are normally found in the amniotic fluid and in the mother's blood. If the baby has an NTD, however, the level of AFP is greatly increased.

Down Syndrome

Down Syndrome is a condition which affects about 1 in 800 newborns. It is the result of a chromosomal abnormality, usually an extra chromosome #21. The risk for delivering a baby at term with Down Syndrome increases with maternal age, especially after 35. At age 24, the risk is about 1 in 1,300; at 35, the risk is 1 in 365; and at 40, the risk is 1 in 109. Babies with Down Syndrome have a distinct appearance, some degree of cognitive disability, and may have defects of the heart.

In the presence of a baby with Down Syndrome, the level of AFP in the mother's blood is often low, as is the uE3. The hCG and Inhibin-A levels have been found to be higher than normal. The blood levels of each of these substances, in addition to your age, weight, race, and gestational age, are used in the Triple/Quad Screen to determine your risk for having a child with Down Syndrome.

Accuracy of The Test

You must remember that maternal serum screening tests are *not diagnostic*. They do **not** give you a "yes" or "no" answer. There are many other kinds of birth defects that cannot be detected by Triple/Quad Screens. The tests **will**, however, identify those women who may be at a higher risk for NTDs, Down Syndrome, and Trisomy 18. The AFP will detect about 90% of all pregnancies with an NTD.

The combination of AFP, hCG, and uE3 (Triple Screen) will detect about 60-65% of all pregnancies with a baby with Down Syndrome. There is, however, about a 5% false positive rate for Down Syndrome in women under age 35. This means that the results indicate an increased risk for the condition, but the baby does not have abnormalities. The Quad Screen has a Down Syndrome detection rate of 70-75% with a 5% false-positive rate.

Can Other Conditions Be Detected?

Defects of the baby's abdominal wall may also be associated with abnormal Triple Screen results, with an increase in the AFP level. Another chromosomal abnormality, Trisomy 18, is associated with low levels of AFP, uE3, and hCG. The Triple/Quad Screen will detect about 60% of fetuses with this condition, which is usually lethal and occurs in about 1 in 8,000 births.

What Does It Mean If Results Are Normal?

Normal levels of AFP, hCG, uE3, and Inhibin-A means your baby probably does not have Down Syndrome, Trisomy 18, or a neural tube defect. It does not, however, guarantee a healthy baby.

What if Results Are Abnormal?

There are several reasons why your Triple/Quad Screen test may be abnormal. The two most common are: you are not as far along in your pregnancy as we believed; or, you are carrying more than one baby. An ultrasound will be done, and if that does not provide an explanation, then you will be offered genetic counseling and amniocentesis. If your risk for Down Syndrome is high (generally greater than 1 in 270), the only way to know *with certainty* whether or not your baby is affected is by having an amniocentesis. While the risks to the baby are extremely low with amniocentesis, there is a miscarriage rate of about 0.3% (1 in 300).

Should I Have the Test?

Your decision on whether or not to have the Triple/Quad Screen is a personal one. Discuss it with your partner, and bring your questions to your next OB visit. We will be happy to discuss your concerns about the test and the information it provides.

Are Maternal Serum Screens Covered By Insurance?

Nearly all insurance companies cover the Triple Screen test. Because it is newer, coverage for the Quad Screen varies with insurance company. Because it is a more sensitive test, it is the one we recommend. Please verify coverage with your company prior to having any tests.